



DEVCOM
ARMAMENTS
CENTER

MATERIALS ENGINEERING LABORATORY

LABORATORY INFORMATION FACT SHEET

CONTACT US:

Technology Transfer Office

Email: usarmy.pica.devcom-ac.mbx.t2@army.mil

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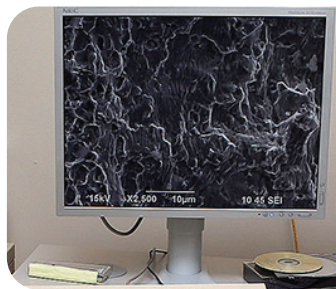


Benét Laboratories' Materials Engineering Laboratory has full forensic capability of failure analysis ranging from the collection of incident field data all the way through the microscopic details of the failure.

TECHNOLOGY/FACILITY DESCRIPTION:

Materials Characterization, Materials Processing Simulation, and Development (Heat Treatment, Thermo-Mechanical Forming, Casting, Forging, Flowforming, and Extrusion). The Lab's engineering support in production expertise includes:

Material Supplier/Selection, Product Waiver/Deviation Review, Manufacturing Solutions, Specification Review, and Product Verification Through First Article Inspections. Metallurgical Expertise in Ferrous and Non-Ferrous Alloys, Brasses, Titanium, Aluminum, Magnesium, and Plain Carbon Steels. Environmental/Corrosion Mitigation Recommendations. The Lab also offers metallurgical support in the fields of additive manufacturing and the welding and joining of different materials.



EQUIPMENT AND EXPERTISE AVAILABLE:

- Provides support to a large range of weapon systems including large, medium, and small caliber cannon systems, howitzers, and mortars through engineering support to production and prototype manufacturing
- Field support through sustainment and failure analysis
- Materials characterization and selection for next generation weapon systems
- Materials process and simulation development
- Reverse engineering
- MTS 810 multipurpose servohydraulic testing system
- Charpy Impact Machine
- Microhardness Tester (Vickers and Knopp)
- Hardness (Benchtop Rockwell A, B, C Scale and Brinell/Benchtop and Portable)
- Stress Strain Microprobe
- Scanning Electron Microscopy
- Energy Dispersive X-Ray Spectroscopy
- Stereo and Inverted Microscopes
- Heat Treatment (varying quenchants and furnaces)
- Magnetic Particle Inspection
- Liquid Penetrant Inspection
- Gleeble 1500 Thermomechanical Simulator
- Ultrasonic Inspection (handheld and immersion)
- Environmentally Assisted Cracking Testing and Analysis
- Eddy Current Inspection
- Grain Size Analysis
- Microstructural Analysis